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(54) **Humectant composition for the skin, containing collagen and urea**

(57) A humectant composition for moisturizing the skin contains, in aqueous solution, 3 to 8% of sodium lactate, 12 to 24% of glycerol, 30 to 42% of urea, and native collagen, said native collagen being present in an amount of less than 0.5%, the percentages being by weight expressed relative to the total weight of the humectant composition. This composition can be used in cosmetic or pharmaceutical compositions.

The term "native collagen" is stated to mean a collagen characterised as consisting of a triple helix of three helical chains ( $\alpha$ ,  $\beta$  +  $\gamma$ ) of molecular weights 100,000; 200,000 and 300,000 respectively. The collagen may or may not possess telopeptides. It is obtained by cold extraction from the skin of young animals (eg calves).

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## SPECIFICATION

**Humectant composition for use in cosmetic or pharmaceutical compositions**

5 The present invention relates to a new humectant composition which can be used in cosmetic or pharmaceutical compositions. 5

It is common practice to use humectants in cosmetics, humectants being hygroscopic substances which make it possible to absorb moisture from the atmosphere and to maintain the proportion of water in the compositions, so that the latter do not tend to dry out. Furthermore, the hygroscopic properties of the film of humectant, when it is applied to the skin, constitute an important factor which makes it possible to influence favourably the suppleness and the feel of the skin. 10

Amongst the numerous humectant substances most commonly used, there may be mentioned sodium salts such as sodium lactate or sodium pyrrolidonecarboxylate, polyols such as glycerol, sorbitol and propylene glycol, and other substances such as urea.

15 It has also been proposed to use mixtures of these substances, although it has not been possible to observe a particularly noticeable synergistic effect in this case. 15

Amongst these mixtures, the combination of pyrrolidonecarboxylic acid or one of its hygroscopic salts, of a C<sub>2</sub>-C<sub>5</sub> α-hydroxycarboxylic acid salt, in particular the sodium salt of glycolic or lactic acid, and of a polypeptide substance from modified collagen has been very particularly described in British Patent No. 1,471,679. 20

According to the said patent, the expression "polypeptide substance from modified collagen" is to be understood as meaning a polypeptide substance having amino groups quaternised with a halide ion and having terminal carboxyl groups esterified by a C<sub>3</sub>-C<sub>12</sub> aminoalcohol, or a polypeptide substance having terminal amino groups which have reacted with a saturated or unsaturated fatty acid and having terminal carboxyl groups which have reacted with a polyol, the polypeptide substance in each case being derived from collagen and possessing an average molecular weight corresponding to a dipeptide, tripeptide or tetrapeptide. 25

According to the said patent, the proportions of the various ingredients can vary within a weight ratio of 0.75 to 1.25 for the pyrrolidonecarboxylic acid or its hygroscopic salt, from 0.75 to 1.25 for the C<sub>2</sub>-C<sub>5</sub> α-hydroxycarboxylic acid salt and from 3.75 to 6.25 for the polypeptide derivative of modified collagen. 30

The present invention also relates to a particular combination of humectants which makes it possible to impart excellent keeping properties to the compositions and furthermore to impart properties which make the skin soft and supple.

The present invention relates to a humectant composition which contains, in aqueous solution, 3 to 8% by weight of sodium lactate, 12 to 24% by weight of glycerol, 30 to 42% by weight of urea, and native collagen, said native collagen being present in an amount of less than 0.5% by weight and said percentages being expressed relative to the total weight of the humectant composition. 35

The various tests carried out have made it possible to show that this combination alone, with the proportions mentioned above, is capable of imparting the desired properties.

40 The present invention also provides a cosmetic or pharmaceutical composition which contains a humectant composition of the invention in a proportion of 5 to 60% by weight relative to the total weight of the cosmetic or pharmaceutical composition. 40

The humectant composition contains native collagen and, in particular, it has been shown that the presence of native collagen is essential for obtaining a good humectant power.

45 Preferably, the humectant composition according to the invention contains, in aqueous solution: from 4 to 7% by weight of sodium lactate, from 15.5 to 21% by weight of glycerol, from 35.5 to 39% by weight of urea, from 0.05 to 0.2% by weight of native collagen. 45

The term "native collagen" is understood as meaning a collagen having the following characteristics:

It consists of a triple helix comprising three helical chains α, β and γ having respective molecular weights of 100,000, 200,000 and 300,000. 50

The α chain consists of 2 sub-units α<sub>1</sub> and α<sub>2</sub>, each having a molecular weight of 100,000 and differing slightly from one another in the nature of the aminoacids of which they consist.

The β chain consists of two sub-units β<sub>11</sub>, which consists of 2 sub-units α<sub>1</sub>, and β<sub>12</sub>, which consists of one sub-unit α<sub>1</sub> and one sub-unit α<sub>2</sub>.

55 Each of the sub-units β<sub>11</sub> and β<sub>12</sub> has a molecular weight of 200,000. 55

Furthermore, at the end of each helix, depending on the method of extraction of the collagen, there may or may not be a linear polypeptide chain, referred to as a telopeptide, having a length of about 50 Å.

The collagen used in the compositions according to the invention may or may not possess telopeptides.

This native collagen is totally different from the polypeptide substance from modified collagen used in British Patent No. 1,471,679, in that, according to the invention, the native collagen is extracted in the cold from the skin of young animals and more particularly from the skin of young calves. 60

By virtue of the particular conditions of its extraction, this native collagen therefore has an unmodified structure and is undegraded.

The humectant composition according to the invention can be employed in all compositions generally requiring the presence of a humectant, either for good keeping properties of the compositions, or for 65

improving the appearance of the skin.

Amongst the compositions in which the humectant composition according to the invention can be employed, there may be mentioned, in particular, face-care lotions and creams, body milks, make-up removal milks or creams, anti-sunburn milks or creams, make-up foundations, tinted creams and

5 anti-wrinkle creams or eye tissue creams, without this list implying a limitation.

5

In general, a proportion of 5 to 60% by weight of the humectant composition according to the invention is used in order to obtain good results.

Likewise, the humectant composition according to the invention can be used in pharmaceutical compositions, or, more particularly, pharmaceutical compositions for the skin, in the same proportions.

10 The following examples illustrate humectant compositions according to the invention, and also cosmetic or pharmaceutical compositions in which they are present. Percentages are by weight.

10

#### Example A

15	sodium lactate (60% strength solution in water) .....	9 g	15
	glycerol .....	18.5 g	
	urea .....	36 g	
20	collagen (0.3% strength solution in water) .....	36.5 g	20

#### Example B

25	sodium lactate (60% strength solution in water) .....	10 g	25
	glycerol .....	17 g	
	urea .....	35 g	
30	collagen (0.3% strength solution in water) .....	38 g	30

#### Example C

35	sodium lactate (60% strength solution in water) .....	8 g	35
	glycerol .....	20 g	
	urea .....	39 g	
40	collagen (0.3% strength solution in water) .....	33 g	40

#### Example D

45	sodium lactate (60% strength solution in water) .....	8 g	45
	glycerol .....	16 g	
	urea .....	36 g	
	collagen (0.3% strength solution in water) .....	40 g	

### EXAMPLES OF COMPOSITIONS

#### 50 Example 1

50

A face cream in the form of a water-in-oil emulsion is prepared, according to the invention, by mixing the following ingredients:

55	lanolic acid .....	13.5 g	55
	arginine .....	1.5 g	
	hydrogenated lanoline .....	15.0 g	
	paraffin oil .....	35.0 g	
60	humectant composition according to Example A .....	22 g	60
	preservative .....	0.15 g	
	perfume .....	0.10 g	
	water q.s.p. ....	100 g	

*Example 2*

A face cream in the form of an oil-in-water emulsion is prepared, according to the invention, by mixing the following ingredients:

5	triglycerides of saturated fatty acids, sold under the name "MIGLYOL 812" by Dynamit Nobel .....	4.0 g	5
	cetyl alcohol .....	0.5 g	
	decyl oleate .....	5.0 g	
10	vaseline oil .....	13.0 g	10
	polyglycol ether of cetyl alcohol oxyethyleneated with 10 mols of ethylene oxide .....	4.0 g	
	polyethylene powder .....	4.0 g	
15	humectant composition according to Example A .....	27.5 g	15
	water + preservative q.s.p. ....	100 g	

*Example 3*

A make-up removal milk is prepared, according to the invention, by mixing the following ingredients:

20	paraffin oil .....	10.0 g	20
	stearyl ether polyoxyethyleneated with 10 mols of ethylene oxide .....	2.0 g	
25	cetyl ether polyoxyethyleneated with 10 mols of ethylene oxide .....	2.0 g	25
	glycerol monostearate .....	4.0 g	
	cetyl alcohol .....	1.0 g	
	stearyl alcohol .....	1.0 g	
30	hydroxypropylmethylcellulose .....	0.3 g	30
	1-"cocoyl"-1-(sodium carboxymethyl)-2- [2-(sodium carboxymethoxy)-ethyl]- imidazolinium hydroxide, a product sold under the name Miranol C2M .....	2.0 g	
35	methyl p-hydroxybenzoate .....	0.2 g	35
	clay of the kaolinite type .....	5.0 g	
	humectant composition according to Example B .....	17 g	
	perfume .....	0.05 g	
40	water q.s.p. ....	100 g	40

*Example 4*

A body milk is prepared by mixing the following ingredients:

45	isopropyl palmitate .....	5.0 g	45
	paraffin oil .....	10.0 g	
	mixture of lanoline alcohols and lanoline sterols, a product sold under the name Amerchol L 101 by American Cholesterol Products .....	0.3 g	50
50	stearic acid .....	1.4 g	
	self-emulsifiable glycerol monostearate cetyl alcohol .....	2.0 g	
	triethanolamine .....	0.75 g	
55	hydroxymethylcellulose .....	0.5 g	55
	propylene glycol .....	2.0 g	
	methyl p-hydroxybenzoate .....	0.35 g	
	humectant composition according to Example B .....	35 g	
60	perfume .....	0.1 g	60
	water q.s.p. ....	100 g	

*Example 5*

A sun cream is prepared, according to the invention, by mixing the following ingredients:

5	magnesium lanolate .....	2.85 g	
	lanoline alcohol .....	6.65 g	5
	isopropyl palmitate .....	22.20 g	
	paraffin oil .....	26.00 g	
	ozokerite .....	2.00 g	
10	humectant composition according to Example D .....	22 g	10
	sun filter sold under the name "Parsol Ultra" by Givaudan .....	5.00 g	
	water + preservative q.s.p. ....	100 g	

*Example 6*

A water-in-oil sun cream is prepared, according to the invention, by mixing the following ingredients:

	self-emulsifiable glycerol monostearate .....	5.00 g	
20	isopropyl myristate .....	16.00 g	
	perhydrosqualene .....	10.00 g	20
	methyl p-hydroxybenzoate .....	0.3 g	
	hydroxymethylcellulose .....	0.5 g	
	2-ethoxyethyl p-methoxycinnamate .....	5.0 g	
25	humectant composition according to Example C .....	26 g	25
	perfume .....	0.1 g	
	water q.s.p. ....	100 g	

*Example 7*

30 A make-up foundation in the form of an oil-in-water emulsion is prepared, according to the invention, by mixing the following ingredients: 30

	isopropyl lanolate .....	4.0 g	
35	stearic acid .....	2.6 g	
	self-emulsifiable glycerol stearate .....	5.0 g	35
	paraffin oil .....	10.0 g	
	vaseline .....	10.0 g	
	triethanolamine .....	1.2 g	
40	sodium lauryl-sulphate .....	1.1 g	
	bentonite .....	2.5 g	40
	humectant composition according to Example A .....	16 g	
	red iron oxide .....	0.7 g	
45	yellow iron oxide .....	0.9 g	
	titanium oxide .....	2.0 g	45
	perfume .....	0.1 g	
	water + preservative q.s.p. ....	100 g	

*Example 8*

An eye tissue cream in the form of an oil-in-water emulsion is prepared, according to the invention, by mixing the following ingredients:

5	self-emulsifiable glycerol monostearate .....	3.0 g	
	mixture of lanoline alcohols and lanoline		5
	sterols, sold under the name Amerchol L		
	101 by American Cholesterol Products .....	3.0 g	
	perhydrosqualene .....	10.0 g	
	isopropyl palmitate .....	1.0 g	
10	cetyl alcohol .....	2.0 g	10
	soya lecithin .....	0.5 g	
	hydroxymethylcellulose .....	0.5 g	
	placental extracts .....	2.0 g	
	amino-serous extracts .....	1.0 g	
15	humectant composition according		15
	to Example B .....	28 g	
	perfume .....	0.5 g	
	water + preservative q.s.p. ....	100 g	

## 20 CLAIMS 20

1. A humectant composition which comprises an aqueous solution of 3 to 8% by weight of sodium lactate, 12 to 24% by weight of glycerol, 30 to 42% by weight of urea, and native collagen, said native  
25 collagen being present in an amount of less than 0.5% by weight and said percentages being expressed relative to the total weight of the humectant composition. 25
2. A composition according to claim 1 wherein the sodium lactate is present in an amount of from 4 to 7% by weight, the glycerol is present in an amount of from 15.5 to 21% by weight, the urea is present in an amount of from 33.5 to 39% by weight and the native collagen is present in an amount of from 0.05 to 0.2%  
30 by weight. 30
3. A humectant composition substantially as hereinbefore described in any one of Examples A to D.
4. A cosmetic or pharmaceutical composition which contains a humectant composition as claimed in any one of the preceding claims in a proportion of 5 to 60% by weight, relative to the total weight of the cosmetic or pharmaceutical composition.
- 35 5. A cosmetic or pharmaceutical composition substantially as hereinbefore described in any one of Examples 1 to 8. 35